

AMENDMENTS THE CLAIMS

Please amend the claims as follows:

Listing of Claims:

Claim 1 (Currently Amended): A charging device comprising:

a charging member configured to be applied with a voltage wherein an alternating current voltage is superimposed on a direct current voltage to charge an image carrier,

wherein a following relationship is satisfied:

$$7 \leq f/v \leq 17, \quad (1)$$

where “f” being is a frequency (Hz) of the alternating current voltage, and “v” being is a moving speed (mm/sec) of the image carrier,

the frequency of the alternating current voltage being in a range between 2000 to 4500Hz.

Claim 2 (Currently Amended): The charging device according to claim 1, wherein a following relationship is further satisfied:

$$9 \leq f/v \leq 15, \quad (2)$$

Claim 3 (Currently Amended): The charging device according to claim 1, wherein the relationship $7 \leq f/v \leq 17$ (1) is satisfied at least when the charging member charges an image forming area of the image carrier.

Claim 4 (Currently Amended): The charging device according to claim 2, wherein the relationship $9 \leq f/v \leq 15$ (2) is satisfied at least when the charging member charges an image forming area of the image carrier.

Claim 5 (Currently Amended): The charging device according to claim 1, wherein a following relationship is satisfied when the charging member charges an area of the image carrier other than an image forming area of the image carrier:

$$0.5 \leq f/v \leq 7, \quad (\text{3})$$

Claim 6 (Currently Amended): The charging device according to claim 2, wherein a following relationship is satisfied when the charging member charges an area of the image carrier other than an image forming area of the image carrier:

$$0.5 \leq f/v \leq 7, \quad (\text{3})$$

Claim 7 (Original): The charging device according to claim 1, wherein the charging member is disposed opposite to the image carrier spaced by a minute gap.

Claim 8 (Original): The charging device according to claim 1, wherein the charging member comprises a rotatable charging roller.

Claim 9 (Currently Amended): An image forming process cartridge for use in a main body of an image forming apparatus, comprising at least:

an image carrier configured to carry an image; and

a charging member configured to be applied with a voltage wherein an alternating current voltage is superimposed on a direct current voltage to charge the image carrier,

wherein a following relationship is satisfied when the charging member charges an image forming area of the image carrier:

$$7 \leq f/v \leq 17, \quad (\text{4})$$

where “f” being is a frequency (Hz) of the alternating current voltage, and “v” being is a moving speed (mm/sec) of the image carrier,

wherein a following relationship is satisfied when the charging member charges an area of the image carrier other than the image forming area of the image carrier,

$$0.5 \leq f/v \leq 7, \text{ and}$$

wherein the image carrier and the charging member are integrally accommodated in the image forming process cartridge, and the image forming process cartridge is detachably attached to the main body of the image forming apparatus.

Claim 10 (Currently Amended): The image forming process cartridge according to claim 9, wherein a following relationship is further satisfied:

$$9 \leq f/v \leq 15, \quad (\text{2})$$

Claim 11 (Cancelled).

Claim 12 (Currently Amended): The image forming process cartridge according to claim 10, wherein the relationship $9 \leq f/v \leq 15$ (2) is satisfied at least when the charging member charges an image forming area of the image carrier.

Claim 13-14 (Cancelled).

Claim 15 (Original): The image forming process cartridge according to claim 9, wherein the charging member is disposed opposite to the image carrier spaced by a minute gap.

Claim 16 (Original): The image forming process cartridge according to claim 9, wherein the charging member comprises a rotatable charging roller.

Claim 17 (Original): The image forming process cartridge according to claim 9, further comprising:

a cleaning member configured to clean the charging member; and
at least one contact member in contact with a surface of the image carrier,
wherein the cleaning member and the at least one contact member are further integrally accommodated in the image forming process cartridge.

Claim 18 (Original): The image forming process cartridge according to claim 9, wherein the image carrier comprises a photoreceptor that includes a surface layer made of amorphous-silicon.

Claim 19 (Original): The image forming process cartridge according to claim 9, wherein the image carrier comprises a photoreceptor that includes a surface layer in which filler is dispersed.

Claim 20 (Currently Amended): An image forming apparatus comprising:
an image carrier configured to carry an image; and
a charging device comprising:
a charging member configured to be applied with a voltage wherein an alternating current voltage is superimposed on a direct current voltage to charge the image carrier,

wherein a following relationship is satisfied when the charging member charges an image forming area of the image carrier:

$$7 \leq f/v \leq 17, \quad (1)$$

where “f” being is a frequency (Hz) of the alternating current voltage, and “v” being is a moving speed (mm/sec) of the image carrier, and

wherein a following relationship is satisfied when the charging member charges an area of the image carrier other than the image forming area of the image carrier:

$$0.5 \leq f/v \leq 7.$$

Claim 21 (Currently Amended): The image forming apparatus according to claim 20, wherein a following relationship is further satisfied:

$$9 \leq f/v \leq 15, \quad (2)$$

Claim 22 (Cancelled).

Claim 23 (Currently Amended): The image forming apparatus according to claim 21, wherein the relationship $9 \leq f/v \leq 15$ (2) is satisfied at least when the charging member charges an image forming area of the image carrier.

Claim 24-25 (Cancelled).

Claim 26 (Original): The image forming apparatus according to claim 20, wherein the charging member is disposed opposite to the image carrier spaced by a minute gap.

Claim 27 (Original): The image forming apparatus according to claim 20, wherein the charging member comprises a rotatable charging roller.

Claim 28 (Original): The image forming apparatus according to claim 20, further comprising:

a cleaning member configured to clean the charging member; and
at least one contact member in contact with a surface of the image carrier.

Claim 29 (Original): The image forming apparatus according to claim 20, wherein the image carrier comprises a photoreceptor that includes a surface layer made of amorphous-silicon.

Claim 30 (Original): The image forming apparatus according to claim 20, wherein the image carrier comprises a photoreceptor that includes a surface layer in which filler is dispersed.

Claim 31 (Currently Amended): An image forming process cartridge for use in a main body of an image forming apparatus, comprising at least:

image carrying means for carrying an image; and

charging means for charging the image carrying means, the charging means being applied with a voltage wherein an alternating current voltage is superimposed on a direct current voltage,

wherein a following relationship is satisfied when the charging member charges an image forming area of the image carrier:

$$7 \leq f/v \leq 17, \quad (1)$$

where “f” is being a frequency (Hz) of the alternating current voltage, and “v” is being a moving speed (mm/sec) of the image carrying means,

wherein a following relationship is satisfied when the charging member charges an area of the image carrier other than the image forming area of the image carrier,

$$0.5 \leq f/v \leq 7, \text{ and}$$

wherein the image carrying means and the charging means are integrally accommodated in the image forming process cartridge, and the image forming process cartridge is detachably attached to the main body of the image forming apparatus.

Claim 32 (Original): The image forming process cartridge according to claim 31, further comprising:

first cleaning means for cleaning the charging means; and
second cleaning means for cleaning a surface of the image carrying means,
wherein the first cleaning means and the second cleaning means are further integrally accommodated in the image forming process cartridge.

Claim 33 (Currently Amended): An image forming apparatus comprising:
image carrying means for carrying an image; and
charging means for charging the image carrying means, the charging means being applied with a voltage wherein an alternating current voltage is superimposed on a direct current voltage,

wherein a following relationship is satisfied when the charging member charges an image forming area of the image carrier:

$$7 \leq f/v \leq 17, \quad (4)$$

where “f” being is a frequency (Hz) of the alternating current voltage, and “v” being is a moving speed (mm/sec) of the image carrying means, and

wherein a following relationship is satisfied when the charging member charges an area of the image carrier other than the image forming area of the image carrier,

$$0.5 \leq f/v \leq 7.$$

Claim 34 (Original): The image forming apparatus according to claim 33, further comprising:

first cleaning means for cleaning the charging means; and

second cleaning means for cleaning a surface of the image carrying means.

Claim 35 (New): A charging device comprising:

a charging member configured to be applied with a voltage wherein an alternating current voltage is superimposed on a direct current voltage to charge an image carrier,

wherein a following relationship is satisfied when the charging member charges an image forming area of the image carrier:

$$7 \leq f/v \leq 17,$$

“f” being a frequency (Hz) of the alternating current voltage, and “v” being a moving speed (mm/sec) of the image carrier, and

wherein a following relationship is satisfied when the charging member charges an area of the image carrier other than the image forming area,

$$0.5 \leq f/v \leq 7.$$